

AN H. R.
E S S A Y

ON THE
BITE OF A MAD DOG,

IN WHICH
THE CLAIM TO INFALLIBILITY OF THE
PRINCIPAL PRESERVATIVE REMEDIES

AGAINST THE
HYDROPHOBIA
IS EXAMINED.

By JOHN BERKENHOUT, M.D.

L O N D O N :
PRINTED FOR R. BALDWIN, PATER-NOSTER-ROW.
MDCCLXXXIII.

[Price One Shilling and Sixpence.]

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Price One Shilling and Sixpence.

TO

SIR GEORGE BAKER, Bart. F.R.S.

PHYSICIAN IN ORDINARY TO THE QUEEN,

THIS ESSAY

IS INSCRIBED,

BY

HIS MOST OBEDIENT SERVANT,

Winton,
July 21, 1783.

THE AUTHOR.

TO

SIR GEORGE BAKER, Bt. F.R.S.

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A N

E S S A Y

ON THE

Bite of a Mad Dog, &c.

1. **I** Know not of any human attempt which bears a better resemblance to the knight of La Mancha's attack of a wind-mill, than that of combating vulgar errors; of reasoning against received opinions. The most powerful and pointed arguments generally fall to the ground, when opposed by the impenetrable shield of common prejudice. Nevertheless, in the present age, when science is hourly making such rapid advances towards the discovery of truth; when knowledge is so much more universally diffused than in

B

former

former times, it seems not unreasonable to hope, that mankind may be persuaded to bestow a few moments unbiaſſed attention on a ſubject confeſſedly of the higheſt medical importance.

2. This ſubject hath indeed been amply and learnedly treated by ancient and modern phyſicians, in various countries and languages; in this kingdom particularly, by the celebrated Dr. Mead, and the no leſs famous Dr. James; the latter of whom published, in the year 1760, an entire volume on Canine Madneſs. Ancient authors were leſs diſſuſe, and were generally ſatiſfied with tranſcribing from each other. Moſt of theſe writers I have conſidered with attention, and acknowledge myſelf much obliged to them for many important facts: I cannot, however, avoid obſerving, that their labours have a manifeſt tendency to confirm the fatal prejudice which I moſt devoutly wiſh to eradicate; I therefore think myſelf juſtified in adding a ſmall pamphlet to the voluminous tracts already written on the diſeaſe commonly, but improperly, called the *hydrophobia*, or dread of water. I ſay
improperly,

improperly, because this aversion to water, or to drink of every kind, is only one *symptom* of the disease in question, and that not constantly nor exclusively; for there are many examples on record, sufficiently authenticated, of this symptom, this *hydrophobia*, in patients not bitten by a dog, or by any other animal.

3. I am even inclined to assert, that the *hydrophobia* is not generally a symptom of the disease produced by the bite of a mad dog. It rarely happens that the patient has any aversion to water or other liquid, until by experience he finds an insuperable difficulty in swallowing. He then dreads the approach of water, having already found that the attempt to swallow any liquid produces a violent and painful convulsion; so that the symptom in question is rather a real difficulty of swallowing liquids, than a dread of water. As far as my own experience reaches, I can, with great truth, aver, that I have never yet met with a single patient, who expressed any aversion to the sight, sound, or mention of water, until he had found, by experience, that drinking gave him pain.

4. Some years ago, I was sent for to a young gentleman, who, about six weeks before, had been bit in the arm by one of his father's hounds. A few hours before his death, he stepped into a tub of warm water without fear, sat down, and continued in it half an hour. I shall, in its proper place, relate his case circumstantially: I mention it at present only to prove, that the *hydrophobia* is improperly considered as a diagnostic symptom of this disease.

5. I am equally inclined to dispute the propriety of the denomination *rabies canina*, canine madness; for though persons thus unhappily afflicted are often violently agitated during a short time previous to their death, yet they generally retain their reason to the last moment; this disease, therefore, is improperly considered as a species of madness, if by madness we understand, a distraction, suspension, or perversion of the reasoning faculties.

6. Writers, fond of searching into antiquity for what is not worth finding, have taken great pains to discover the most ancient authors that have written on canine
madness,

madness. Hippocrates, most certainly, has not said a single word on the subject, whatever some of his wise commentators may have imagined. A learned list of ancient authors, who have written on the *hydrophobia*, may be collected from various modern writers; but we search in vain for useful information on this subject among the remains of high antiquity.

7. But if the disease we are about to investigate be neither a species of *rabies*, nor *hydrophobia*, what shall we call it!—It were idle to dispute about a mere name; but when a misnomer conveys a false idea, it is no longer a matter of indifference. The fatal disorder communicated to the human species by the bite of a mad dog is doubtless a spasm of the organs of deglutition and respiration; a species of *angina convulsiva, vel suffocativa*. The generic term *Angina*, is thus defined by the learned Boerhaave, in his 783d aphorism—*Impedita valde, dolens admodum, vel et impedita et dolens simul, deglutitio atque respiratio, quæ contingit a causa morbosa agente in partes binis his functionibus inservientes, supra pulmones et supra stomachum*
B 3 *positas,*

positas, Angina vocatur; and in aphorism 818, he says,—Si convulsionum causa quæcunque musculos pharingis laryngisve occupaverit, oritur subita suffocativa angina.

8. As I am here writing particularly to medical readers, it is unnecessary to translate the above quotation. Such readers, after comparing these definitions with the symptoms of the *hydrophobia*, as it is called, will, I believe, acknowledge their surprise, that Boerhaave should not rather have classed it as a species of *angina* than of *mania*. Later nosologists seem equally unfortunate in point of arrangement. In the system of the celebrated Sauvages, we find *Hydrophobia* in the class *Vesania*, and order *Morositates*. His definition of the class is, *error in imaginatione, appetitu, vel judicio*; of the order, *cupiditates aut aversiones depravatæ*. Now, I appeal, not to systematic writers, but to those who have attended patients suffering under this dreadful distemper; and I request them to recollect, whether erroneous imagination, appetite, or judgment, or depraved desires or aversions, were among the symptoms

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toms they observed? As to the patient's refusing to drink, it proceeds not from an imaginary aversion to water, but from a real, a painful convulsion in the organs of deglutition, excited by every effort to swallow liquids.

9. Linneus divides the disease in question into two distinct genera, viz. *Rabies*, and *Hydrophobia*: the first he defines in these words, *Desiderium mordendi lacerandique innocuos*; the second, thus, *Aversatio potulentorum cum rigore et sardiasi*, adding, *sæpius præcedenti maritata*. He places them in the class *Mentales*, and order *Pathetici*, where, from what I have said above, they must appear to have no business.

10. In Vogel's arrangement, under the class of *Febres*, and order *continua*, we find the *Hydrophobia* thus characterized, *Febris cum aversatione liquidorum, singultu, convulsione, et delirio*. The absurdity of making the hydrophobia a continued fever is so obvious, that it requires no comment.

11. Dr. Cullen denominates his second class of Diseases, *neuroses*, which he defines—*Sensus et motus læsi, sine pyrexia et sine morbo locali*. *Spasmi* constitute the third order of this class, and of this order, the last-genus is *hydrophobia*, thus defined—*Potionis cujuslibet, ut convulsionem pharyngis dolentem cientis, fastidium et horror; plerumque e morfu animalis rabidi*. Of this genus he admits two species, *viz. vulgaris*, and *spontanea*, the first of which is the immediate object of our present consideration.

12. Dr. Cullen, with his usual sagacity, saw the error of former medical writers, who mistook this spasm in the organs of deglutition, for a species of madness.

13. But by what name soever we distinguish this dreadful disease, previous to our enquiry concerning its symptoms in the human species, let us endeavour to ascertain those by which it may be known in the brute, where it originates.

Authors have amused themselves with learned disquisitions concerning the cause
of

of this *rabies* in dogs, wolves, foxes, &c. Some accuse worms within the cranium, or under the tongue. Dr. Cheyne ascribed it to a superabundance of animal salts, and Dr. James was of opinion that extreme heat, want of water, and putrid animal food, are generally the cause of this madness in dogs, which he calls a fever.

*Treat. on
canine
madness,
p. 20*

14. The usual symptoms which indicate approaching madness in a dog, are, first, an evident diminution of his natural keen appetite for food. He eats, indeed, and laps his milk or water, but with obvious indifference. His eyes have lost their usual lustre; he drops his ears and tail, shews no sign of hilarity at the approach of his master, and his whole aspect exhibits a picture of melancholy, perfectly intelligible to those who are accustomed to observe this animal with attention. In a day or two more, he refuses both meat and drink, shuns the society of other dogs, and is equally, after a short reconnoitre, avoided by them. He now quits his habitation, runs forward, evidently without having any thing in pursuit, snaps at every animal

animal that comes in his way, and within forty-eight hours dies convulsed.

15. Such are the symptoms of this distemper in the brute creation; and these symptoms are so constant and unequivocal, that all danger might easily be prevented, by the smallest degree of attention. In the first stage of the disorder, the dog has no propensity to bite, so that he may be seized and tied up without fear.

16. Boerhaave has collected from *Fracastorius* and other writers, a catalogue of symptoms more numerous, and somewhat different from those above enumerated; but as it was not the result of his own observation, his description of this, as of many other diseases, should be read, *cum grano salis*.

Hist. nat.
Lib. 29,
c. 5.

17. Pliny, in his chapter *de medicina animalium*, tells us, that there is a worm under the tongues of dogs, which if extracted when they are whelps prevents their running mad. This doubtless was a vulgar error of the times in which he wrote, and thus the universal prevalence of
of

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11

of this absurd opinion down to the present age is accounted for. Dr. James very justly ridicules this idea of a worm under the tongue.—“ I take it (says the “ Doctor) to be a nerve; and this contracting when recently taken away, the “ ideots fancy it stirs, and believe it a “ worm, to which it bears no manner of “ resemblance.”—He is certainly right in believing it not to be a worm; but he is mistaken in supposing it a nerve, for a reason which himself hath adduced, namely, its contraction; nerves are not elastic. He is also wrong in saying, it bears no resemblance to a worm. Morgagni probably was nearer the truth, in calling it a tendinous ligament. Be it what it may, it is certainly of use to the dog and its extirpation answers no salutary purpose.

*On can.
mad. p.
203.*

*De sed. &
caus. morb.
lib. 1. c. 8.
viii. art.
35.*

18. Let us now trace the progress of this fatal disease in those of the human species who have the misfortune to be bit by a mad dog or cat. The wound, on immediate inspection, discovers no signs of malignity. If it be so superficial as scarcely to have drawn blood it generally heals without the least inflammation, and

in that case there is little or no danger: on the second day it seems a mere scratch, and on the third it is hardly visible. But if, on the second morning, we observe an inflamed circle spreading from the wound, resembling that which surrounds the puncture when inoculation for the small-pox has taken effect, there is reason to believe that part of the poisonous *saliva* of the enraged animal is absorbed, and the consequent symptoms may be rationally expected.

19. Meanwhile the patient takes the Ormskirk, or some other equally infallible medicine, is hurried away to the sea, in which he is two or three times dipped and half drowned; the wound heals, and all his apprehensions vanish. Unhappily, this delusion also vanishes in the space of five or six weeks, about which period he feels a * pain in the part where he was bit, gradually extending over the whole limb. He now recollects his misfortune. The horrible stories he has heard rush upon his mind, and the hourly expectation of
madness,

* This symptom is said to have been first mentioned by Salius.

madness and death fill his whole soul. Under such apprehensions it is no wonder that he should discover symptoms of impatience, anxiety, and even of delirium. But these symptoms proceed from, and are always in proportion to, his apprehensions. His reasoning faculties continue unimpaired; his pulse becomes irregular and quick; but there is no preternatural heat, foul tongue, nor any other febrile symptom. He complains of a fullness and prickling in his throat, and swallows his spittle with difficulty. So far from expressing any aversion to water, he calls for drink; but in the attempt to swallow it he is convulsed, and, after two or three painful efforts, the approach, or even the sight of any liquid produces horror. He continues some time longer to swallow solid food without much pain or difficulty. At last even that is impossible. He now becomes sensible of an irresistible inclination to struggle, and wishes to be held; he breathes quick and with great difficulty, and in a few hours after dies convulsed, as if he were strangled with a cord.

20. Such, and such only, are the proper diagnostic symptoms of this fatal disorder: they are amply sufficient to distinguish it from any other, and are therefore all that are necessary to be generally known; but as a disease so frequently mortal cannot be too well understood, I shall proceed to mention the symptoms above omitted, as I find them enumerated by the principal authors that have written on this subject.

21. *Cælius Aurelianus*, who collected his history of the *hydrophobia* from *Eudemus*, *Soranus*, and other writers with whom we are little acquainted, tells us that the *hydrophobia* is immediately preceded by extreme irritability, unusual motions of the body, disturbed sleep or absolute wakefulness, indigestion, stretchings, yawning, nausea, imaginary notions of bad weather, and no appetite for drink. To these symptoms, according to the same author, succeed, when the *hydrophobia* begins, a desire to drink*, with terror at the sight, sound, or name of water. The patient is afraid even of fomen-

* *Appetentia bibendi*, which Dr. James translates, a violent and insatiable thirst. — *Treat. on Can, Madn.* p. 55.

fomentations with oil; his pulse is dense (*densus*) small and irregular: sometimes a small degree of fever, convulsive motions of the stomach, spasms in the precordia, numbness of the joints, and torpor of the intestinal canal; frequent inclination to make water; trembling and catchings of the limbs; voice hoarse, resembling the barking of a dog; spiral posture of the body, like that of a dog lying on the ground; anxiety when any person enters the room, as if apprehensive that he should bring water; redness of the face and eyes; body emaciated, the superior parts pale and sweating; *veretri frequens tensio cum seminis involuntario jactu*, &c.

22. To the symptoms above mentioned Boerhaave adds the following—Lassitude, weight, and indolence in every muscle of the body; disturbed sleep, frequent startings, frightful dreams, convulsions; constant inquietude, depression, sighing, and love of solitude. If the patient be bled, the blood exhibits no morbid appearance. He now complains of a squeezing about his heart. He is terrified not only at the sight of any fluid, but even of any

Aphor.
1138.

any pellucid or reflecting body. He vomits viscid bilious phlegm or poraceous bile; grows hot and feverish. To a gradual exacerbation of these symptoms are now accumulated a dry projected tongue, open foaming mouth, extreme thirst, an irresistible inclination to spit at, and bite those that are near him; cold sweats, complete *rabies*, and on the fourth day the patient dies.

23. Dr. Mead copies Boerhaave without any material alteration, except in saying that death relieves the patient in two days after the first symptom of *hydrophobia*.

Sauvages, in his *Nosologia*, adds no other symptom to those above related; but from Dr. James we learn the following very curious and material proof of the salutary instinct of dogs, namely, that they fly from persons actually infected by the bite of a mad animal.

24. Such readers as are not acquainted with medical authors, and particularly with the writings of the celebrated Leyden professor, will wonder why he should

should have exhibited so numerous a catalogue of symptoms, if it be true, that so few of them really occur in patients afflicted with this malady. But his wonder will cease, when he is told that Boerhaave, when he began the study of physic, found the science a mere chaos. He immediately conceived the idea of reducing it to method, and, after much reading, condensed and arranged his materials in the form of aphorisms, constituting a new system of physic, which aphorisms he used as the text of his academical lectures. All his symptoms very seldom occur in the same patient: they were collected from a variety of authors, and are to be remembered by physicians, rather as possible *phenomena* than as absolute diagnostics.

25. Having thus attended our unfortunate patient to the final period of his life, let us proceed to examine the morbid appearances in his body upon dissection.

26. *Cappivacci*, an Italian, was, I believe, the first anatomist who published

an account of any dissection of this kind. His observations, together with those of Zwingerus, Brechtfeld, and other writers, were republished in the *Sepulchretum*, and thence collected by Boerhaave, and condensed into a single aphorism, which, for the sake of the English reader, I will translate.

Aph. 1140. —“ The morbid *phenomena* discoverable
 “ in the body by dissection are generally
 “ the organs of deglutition somewhat in-
 “ flamed, bilious gluten in the stomach,
 “ the gall-bladder full of black bile, the
 “ *pericardium* dry, the lungs incredibly
 “ distended with blood, the heart full of
 “ blood almost dry, the arteries full, the
 “ veins empty, blood in the arteries ex-
 “ tremely liquid, and scarce coagulating
 “ in the air, all the muscles, viscera,
 “ brain, and spinal marrow, dryer than
 “ usual.”

Eph. N.C.
dec. 3. a 2.
obs. 104.

27. *Zwingerus*, in a body which he dissected, found the membranous interstices between the cartilaginous circles of the *aspera arteria* intensely red, and the stomach and intestines sprinkled with red spots.

28. *Brechtfeld*

28. Brechtfeld found the entire tract of the *œsophagus* narrow, and in a state of constriction. *Sepulc. Anat.*

29. M. Tavvry, a French anatomist, found the *gula* and *aspera arteria* in a state of inflammation. *Hist. R. Acad. an. 1699.*

30. *Morgagni* tells us of an hydrophobic patient whose body, though dissected sixteen hours after death, in a cold season, was intolerably putrid. Black bile was found in the gall-bladder; the lungs were also black, and very offensive. The right auricle of the heart was much dilated, the left very narrow. The blood-vessels of the brain were all full; the brain was rather dry. *De Sed. et Caus. Morb. ep. viii. art. 23.*

31. The same author relates another history of a man who died about a month after being bit by a mad dog, and whose body, which was dissected about twenty-four hours after death, in the hottest season of the year, was much less offensive than the former. His neck had a livid appearance; the blood-vessels of the stomach were as full as if they had been injected; *Ib. art. 25.*

injected; the stomach was distended with air, and contained besides a yellow and greenish water; part of the liver was livid, and the gall-bladder was full of brown bile; the diaphragm was a little inflamed; the lungs on the posterior part were tumid with blood, and black; the upper part of the *œsophagus*, *aspera arteria*, *pharynx*, and *larynx* seemed nearly gangrenous; in the head, the vessels of the *meninges* were distended with blood, and the internal substance of the brain was dotted with red points; the internal ventricles contained a reddish *serum*.

Ib. art. 27.

32. In a third dissection the stomach was found to contain a viscid cineritious fluid, and the gall-bladder a small quantity of yellow bile; the iliac veins were violently distended with blood, and their corresponding arteries quite empty; lungs stuffed full with *crassamentum*, and in part almost in a gangrenous state; the heart contained a small quantity of blood resembling melted pitch; the organs of deglutition shewed no other signs of inflammation than a slight redness at the top of the *pharynx*; but the membrane which invests

invests the *epiglottis* was crisp and shrivelled; all the vessels of the *meninges* were immoderably full of black blood; neither the *cerebrum*, *cerebellum*, spinal marrow, *viscera* of the *thorax* and *abdomen*, nor any of the muscles were more dry than they generally are; in the ventricles of the brain were about three ounces of yellowish *serum*.

33. *Morgagni*, after comparing these observations with those of Mead, *Plancus*, *Fabbri*, *Brogiani*, &c. concludes, that the bodies after death differ more from each other than when living: "For (says he) " whilst alive, they all drink with great " difficulty, and most of them not without horror; but, upon dissection, we " find no one phenomenon common to " every subject. As to that dryness of " the parts, so generally observed, it is " by no means universal; nor does it " seem to deserve much consideration, " because the violent agitations of the patient, and the consequent evacuations, " sensible and insensible; the frequent " exhibition of alexipharmics, and long

1b. art.
32.

C 3 " abstinence

“ abstinence from liquids, are sufficient
 “ to account for it.”

34. On the authority, therefore, of Morgagni, who was a man of most extensive anatomical reading and experience, we must conclude, that dissections have not hitherto discovered the part, or parts, of the human body particularly affected, or injured, and consequently no curative indication can thence be deduced. He is of opinion, nevertheless, that the seat of the disorder is in the nerves and brain.

Cæl. Au-
 rel. Lib.
 iii. c. 14.

Democritus and *Gajus*, two of the most ancient writers on this subject, were of the same opinion; as were also the disciples of *Asclepiades*. Some of the ancients accused the diaphragm, some the stomach and intestines, and some the heart.

Apb.
 1142.

35. Boerhaave, from the history and comparison of the *hydrophobia* with other diseases, was induced to believe, that it is first an affection of the nerves; that convulsions of the *viscera* are thence produced; that the blood and humours thence become vitiated; but that the primary seat of the disorder is in the region of the stomach.

stomach. In this last part of his theory, he followed the opinion of *Arthemidorus*, *Artorius*, and the disciples of *Asclepiades*.

*Cæl. Au-
rel. Lib.
iii. c. 14.*

36. Dr. Mead was persuaded, that the seat of the disease is in the nervous fluid, contaminated by the saliva of the dog acting as a ferment, and gradually affimilating the whole to its own degree of morbid acrimony.

*Mechan.
Acc. of
Poisons.
Essay, 3.*

37. Dr. James ridicules these opinions, and roundly declares, that “ he does not believe one syllable of the modern doctrine of nervous juices and nervous distempers.” Previous to the display of his own theory, in order to render it intelligible to readers unacquainted with anatomy, he translates, from Boerhaave’s preface to his *collection of authors on the venereal disease*, a minute description of the cellular membrane; to which he adds two pages more, on the same subject, from Cheselden. The first of these begins thus—“ This membrane is of a vascular texture,” &c. This is certainly not true. If Dr. James had ever read so common a book as Haller’s *Primæ Lineæ*, he

P. 37.

would not have quoted Boerhaave and Cheselden on this occasion. His theory, however, is briefly this—The poison contained in the saliva of the mad dog is communicated through the wound made by his teeth to the fat contained in the cellular membrane, which fat, by fermentation with the saliva, is assimilated into a poison; now this fat being mixt with the blood, and conveyed to the liver, by the *vena portarum*, the bile is contaminated, and necessarily produces all the symptoms observable in canine madness.

P. 77. 38. To render this theory more intelligible, the Doctor informs the ignorant reader, “ that there is a perpetual intercourse betwixt the blood vessels and the cellular membrane, and consequently between the contents of both, the blood and fat.”—It is somewhat singular, that this poisoned fat should, in its passage to the liver, mix with the blood without injuring that fluid, which throughout the entire progress of the disease is found to differ in nothing from that of a person in health. This obstacle was too obvious to escape the Doctor; but

but he tumbles over it very clumsily: he supposes, notwithstanding appearances, that the blood must be ultimately vitiated by the bile; so that the blood first vitiates the bile, and the bile returns the compliment to the blood.

39. Thus, then, according to Dr. James, the liver is the primary seat and fountain of the hydrophobia, which *viscus*, he tells us, “supplies the rest of the P. 82.
“body with bile in immense quantities.” In what physiological school the Doctor learnt that the rest of the body is supplied with bile in immense quantities is difficult to imagine. I know of no part of the body which is supplied with bile except the *duodenum*, where, mixing with the digested aliment issuing from the stomach, part of it is converted into chyle, and thereby bereft of all its bilious qualities, and the remainder carried through the intestinal canal, and finally ejected: so that no bile, *quasi* bile, is absorbed, and consequently no part of the body except the intestinal canal is supplied with this fluid.

40. But,

40. But, if it be true that the liver is the part of the body chiefly affected in the human species, we may, I think, fairly conclude, that this *viscus* is also the primary seat of the disorder in dogs. Now, it is very certain, that the liver of a mad dog, supposed to be an infallible remedy against canine madness, hath been frequently eaten without any bad effect.

41. There is yet another objection to Dr. James's *hypothesis*, which the anatomical reader will probably think of some weight.—Page 78 of his treatise, he tells us, that “ the poisonous saliva adhering to the tooth of a dog is immediately communicated to the fat residing in one or more of the cells of the cellular membrane;” that “ a scratch is sufficient, if it only raise the cuticle, without drawing a drop of blood;” for (continues the Doctor) this subtle poison, as well as the venereal venom, is capable of entering the cellular membrane when applied to any part not covered by the *cuticula*.

42. Is

42. Is it possible that Dr. James, the author of a medical dictionary in three folio volumes, should not have known, that there is no external part of the human body which is not covered by the cuticle. That he was really ignorant of this fact is still more evident from the following passage in his 16th page—After relating a case from Van Swieten, who quotes it from *Palmarius*, of several children having caught the *hydrophobia* by kissing their father, who had been bit by a mad dog, he says—“ In this case it is
 “ very possible that some of the frothy
 “ saliva might be conveyed to the lips or
 “ the mouth of the children, which, *not*
 “ being defended by the cuticle, might
 “ communicate the contagion, as it happens with respect to the venereal poison.”—Now, it is not only certain that the *glans penis*, the lips, and mouth, are covered by the cuticle, but that it is continued through the fauces, *œsophagus* and intestinal canal.

43. But the Doctor assures us that, for the saliva of the dog to poison the fat, “ a
 “ scratch is sufficient, if it only raises the
 “ cuticle.”

“cuticle.” Surely, the Doctor had forgot, that the cellular membrane, with which he took so much pains to make his readers acquainted, and in which the fat resides, adheres to the *internal* surface of the *cutis vera*, which therefore must necessarily be perforated before the saliva can be brought into contact with the fat.

44. If Dr. James had been at all acquainted with the absorbent lymphatic vessels, whose extremities perforate the cuticle in every part of the surface of the body, he would not have deemed those parts only which he supposed destitute of this external shield susceptible of the canine poison. Though the medical world be much indebted to the minute enquiries of Doctors Monro and Hunter for a more perfect intelligence of the lymphatic system, yet the absorption of fluids through the pores of the skin hath been generally known, even prior to the days of Galen, who, as a proof of this fact, says—*Si sitiens balneum ineat, illi sitis sedabitur*. Innumerable experiments have been made by later writers in order to establish this doctrine, particularly by Boyle,

*Gal. de usu
puls. c. 5.*

Boyle, Bellini, and many others. In the *Phil. Tr.*
No. II. Philosophical Transactions we read of men working in quicksilver mines, whose bodies had imbibed so much of that metal, that they changed the colour of brass by rubbing it with their hands, or even by breathing upon it. We know that by handling turpentine the urine acquires a violet smell; that tobacco will vomit, and aloes purge, when externally applied; but the fact most universally known is the constant effect of mercurial unction.

45. Hence it is evident that the *cuticula*, or *epidermis*, as it was called by the Greeks, is no defence against the canine, or any other poison, if the application be continued sufficiently to give time for its absorption: it is therefore necessary, when the *saliva* of a mad dog touches any part of the skin, to wipe it off immediately, and wash the spot. The examples, indeed, of persons thus infected without a wound are not numerous, because those on whose hand or face the *saliva* rests naturally wipe it off before it can be absorbed.

46. But,

46. But, in defence of Dr. James it may be urged, that, whether the cuticle be pervious or not, or in whatsoever manner the canine poison pass the *cutis*, it proves nothing against that part of his *hypothesis* which establishes the fat as the immediate receptacle of the poison, and its future vehicle to the liver.

47. In reply to this defence, it will be sufficient to observe, that the bibulous lymphatics, by which fluids on the surface of the body are absorbed, do not discharge their contents into the cellular texture, but, creeping along its membranes, communicate with larger veins which terminate in the *receptaculum chyli*, the thoracic *duct*, or jugular vein; so that the canine poison, or any other fluid, absorbed from the surface of the body, cannot remain in a state of extravasation with the fat in the cellular web, but must necessarily be thrown into the general mass of circulating fluids*.

48. Dr.

* " I shall avail myself (says Dr. James) of but one
 " more argument to illustrate the probability of the
 " canine venom being received and fostered in the mem-
 " brane which contains the fat, or rather in the fat
 " itself."

48. Dr. James's theory, therefore, being contradicted by anatomical demonstration, necessarily falls to the ground. The hypothesis of Boerhaave, Mead, and others, who supposed the seat of the disease to be in the nervous fluid, is equally insupportable, because no such fluid circulates in the nerves, which are not tubes but solid fibres, whose extremities therefore are incapable of absorption.

49. If these theories be false, those who read for information will ask, where lies the truth? If such readers have sufficiently attended to the 47th paragraph they will easily conceive that the poisonous saliva of the dog is absorbed by the capillary lymphatic veins, whose ramifications expand to every part of the surface of the human body; those veins which imbibe the matter communicated by inoculation, the venereal *virus*, water, and infectious *miasmata* from the air.

50. But,

“ itself. And this I draw from the method of cure; for
“ that very medicine which cures the venereal disease,
“ whose residence is in the fat, is also found effectual
“ in preventing and even curing canine madness.”—
Unfortunately for this argument the venereal disease *does*
not reside in the fat.

50. But, if this be true, why is it necessary, in order to communicate the small pox by inoculation, that the cuticle should be raised?—I answer: It is not necessary; but that by this operation the communication of the disease is rendered more certain, because the matter being lodged under the cuticle, by retaining its moisture, continues longer in a fit state for absorption.

51. If it should be further asked, why the canine poison, thus introduced, continues circulating in the body five or six weeks before it produces that disease, of a single paroxysm, called the *hydrophobia*?—I answer, that in this it differs from other inoculated diseases only in point of time. In all inoculations there is an intervention of some days between the cause and effect; but why that of canine madness requires a longer time for assimilation and maturity must remain a mystery, until we are better acquainted with nature's *modus operandi*. Probably there are other contagious diseases whose malignant *miasmata* may be equally slow in their progress from admission to efficiency.

52. Some

52. Some attempts have been made to discover the nature of this canine poison by the help of microscopes and chemical experiments; but to no purpose. Dr. Mead supposed it to consist of fiery saline particles. Dr. Heysham believes it to be an acid; but this is mere conjecture. All we know of the matter is, that it is a poison *sui generis*, which, being absorbed by the lymphatic veins, produces certain effects in the human body; no mechanical nor chemical theory, therefore, can assist us in the invention of a remedy against the bite of a mad dog. Analogy may possibly be of some use. Chance, the great inventor of medicines, hath not, I think, been successful in the present case. Let us, however, proceed to the most important, the therapeutic division of our essay.

*Dissert.
Med. de
rab. can.
Edinb.
1771.*

53. Mithridates, king of Pontus, about two thousand years ago, is said to have invented that farrago of more than forty ingredients called by his name. Historians tell us that, believing it to be an universal antidote, he took a dose of it every morning. In justice however to his

D

Pontic

Pontic majesty, I must not suppress what *Samonicus* writes on this subject. "When
 " Pompy (says he) took the baggage of
 " Mithridates, he found, among his
 " papers, the prescript for compounding
 " the famous antidote against all poisons,
 " invented by that king: he was much
 " surpris'd to find that it consisted only
 " of twenty leaves of rue, two walnuts,
 " two figs, and a little salt." To whose
 inventive genius we are indebted for the
 forty ingredients which were afterwards
 added I know not, unless to that of
Damocrates, under whose name this cele-
 brated antidote shines conspicuous even
 in the last edition of the London *Phar-*
macopoeia.

54. *Andromachus*, a native of Crete,
 cotemporary with Galen, not satisfied with
 an antidote of forty-five ingredients, com-
 posed one of more than sixty, which he
 called Γαληνῆ (*serenitas*) from its sedative
 or anodyne effect. This impertinent
 jumble of stuff was afterwards called
Theriaca, from the Greek word Θῆρ, *fera*,
 a wild beast, being an antidote against the
 invenomed bite of mad or poisonous
 animals.

animals. This notable hodge-podge is also to be found even in the last edition of the London Dispensatory; and, what is more extraordinary, there are, I am told, some physicians who continue to use these *theriacas* in their prescriptions: with what intention is best known to themselves.

55. If the inventors of *theriacas* had any ideas at all, they probably thought that, in so great a number of ingredients, it was possible some one of them might hit the mark they aimed at, for the same reason that sportsmen prefer a number of small shot to a single bullet; but I am rather inclined to think them the invention of some arch apothecary's apprentice, who had a mind to try what sort of a medicine he could produce by jumbling together every drug in the shop. Be their origin however what it might, they are certainly the oldest antidotes upon record, and, from the proportion of opium they contain, might possibly alleviate the spasmodic symptoms incidental to the bite of a viper, or of a mad dog.

*De simpl.
med. facul.*

56. *Dioscorides* wrote a treatise on the *Theriaca*, in the second chapter of which he recommends, as a medicine that might be depended on for the bite of a mad dog, two spoonfuls of the ashes of the river crab, with half the quantity of gentian, to be taken in a large glass of wine. Galen prescribes the same medicine, with the addition of a small quantity of frankincense: the crabs he burnt alive in a copper dish, after the rising of the star *Sirius*, when the sun was in the constellation *Leo*, and on the eighteenth day of the moon. This invaluable secret he learnt from old *Æserion* the emperic, who, being Galen's master, must have lived cotemporary with *Dioscorides*, and might probably be the inventor of this *infallible medicine*, for so it was esteemed by these physicians.

57. Dr. Mead is of opinion that this remedy is recommended by the ancients upon rational grounds, because it is a diuretic; "For (says he) "the surest remedies in all ages against this venom have "been such as provoke a great discharge "by urine." Reflecting on this circumstance,

stance, this *Esculapius* of his times, conceived the great idea of recommending to the world his infallible *Pulvis Antylissus*, which, at the doctor's request, was honoured with a place in the London *Pharmacopoeia*.

58. Whence did Dr. Mead conclude that this powder of calcined river crabs, or crawfish (for such he supposes them to have been) would *promote a great discharge of urine*? He certainly thought that this calcination, like the incineration of vegetables, would produce an alkaline salt. If he had possessed the least degree of chemical knowledge, he would have known that the animal itself would burn to a mere earth, totally inert, and that its shell would be converted into quick lime, of which consequently, with a very small proportion of earth, this specific must consist.

59. Dr. James's chemical knowledge appears to have been not much inferior to that of Dr. Mead, whom he thinks totally wrong in translating the *καρκίνους ποταμίου* of *Dioscorides*, and Galen, *River Crawfish*. He is clearly of opinion, and

takes some pains to prove, that these authors meant a species of river crab, and not crawfish. Dr. James prudently observes, that we ought to be very accurate in our quotations from ancient authors, “ lest the medicine recommended be “ mistaken for something that may not “ possess the same virtues.” This is doubtless a wise observation; but any chemist’s boy would have told him, that the virtues, whatever they may be, of a calcined crawfish, crab, or oyster, are exactly the same; that all shells are calcareous earth, and consequently burn to quick lime, in no respect different from that produced by the calcination of chalk, lime-stone, or marble. But, that Dr. James, as well as Dr. Mead, supposed that this calcination of river crabs produced an alkaline salt is evident from the following passage. Speaking of this powder, he says — “ I believe it may have some efficacy in “ preventing the canine madness, though “ none that can be depended upon. This “ opinion is founded on its being an “ highly alkaline substance; and all or “ most of the pretended specifics for this “ distemper are alkaline, and destroyers of “ acids;

“acids; as the celebrated pancake made
 “of oister-shells, mentioned by Dessault,
 “*Armenian Bole, Tin,* and many other.”
 These last words put the doctor's skill in
 chemistry quite out of doubt.

60. But, as we can hardly suppose that
 Dioscorides and Galen ventured to give
 their patients two spoonfuls of quick lime,
 it is probable that they did not calcine
 these crabs, or crawfish, sufficiently to
 convert the shells into lime, though long
 enough to dissipate the volatile parts of
 the animal. On this supposition this
 specific powder becomes a mere absorbent
 earth, a *pulvis è chelis cancrorum*, possessed
 of no diuretic virtue; yet Galen pro-
 nounces it infallible.

*De simpl.
 med facul.
 L. 3. c. 34.*

61. The next diuretic antidote of the
 ancients, “recommended (as Dr. Mead
 “thinks) upon rational grounds,” is the
Spongia Cynorrhodi, sponge of the dog-
 rose, “Which (says the Doctor) is so
 “celebrated an antidote, that *P. Boccone*,
 “who has written a whole discourse upon
 “its virtues, tells us it is called in Sicily
 “*Sanatodos*, or All-heal.” We also in
 this country have a common plant dig-

nified with the same name, and equally insignificant in its medical capacity. These *panaceas* are generally good for nothing. But Dr. Mead ranks this gall of the briar among his animal diuretics, because Mr. Ray found it to be the nidus of a fly.—“Now (says the Doctor) all insects abound with a diuretic salt.”—If the lie direct were admissible in polite conversation, I would say, *this is not true*. But I marvel exceedingly that he did not observe that this *Sanatodos* of the Sicilians is called in England a *Dog-rose*, because it produces a medicine for a mad-dog: also, that he forgot to inform his readers, that this celebrated antidote originated in the dream of an old woman, as he must have read in Pliny.

62. Dr. Mead, after specifying, from the ancients, other diuretics, which certainly are *not* diuretics, proceeds to the recommendation of his infallible *Pulvis Antilyssus*, which he declared never failed of success, though he had used it a thousand times. “I have often wished (adds the Doctor) that I knew so certain a remedy in any other disease.”—Surely such

such testimony, from so great a physician, must be more than sufficient to establish the infallibility of any medicine beyond all suspicion: and yet two greater men, Boerhaave and Van Swieten, are of opinion that it is good for nothing; and Dr. James assures us, that “it has been given, “ without success, to a great number of “ people and animals in many parts of “ the kingdom.”

Aph.

1147.

Pa. 227.

63. This infallible *Pulvis Antilyssus* is prescribed by Dr. Mead in the following words—“ Take of the herb called, in “ Latin, *Lichen cinereus terrestris*, in “ English, Ash-coloured ground-liver- “ wort, cleaned, dried, and powdered, “ half an ounce; of black pepper pow- “ dered, two drachms. Mix these toge- “ ther, and divide the powder into four “ doses, one of which must be taken “ every morning fasting for four morn- “ ings successively in a pint of cows “ milk.”—I have now before me a London Dispensatory with manuscript notes by my worthy friend Dr. Longfield, a physician deservedly distinguished for his sound judgement, and extensive me-
dical

dical knowledge. On the blank leaf opposite to the *Pulvis Antilyssus*, he wrote—
 “ This is Dr. Mead’s famous powder: it
 “ is most certain that it never cured one
 “ person bit by a mad dog.”

64. A moderate share of experience in the medical powers of plants is sufficient to determine *à priori* the virtue of this Lichen, which, together with the rest of its tribe, discovers no other sensible quality than a slight degree of astringency, and therefore can have no other effect than what may be expected from any other medicine, astringent in the same degree; unless we admit the doctrine of specifics, to which Dr. Mead would doubtless have objected, being himself a *sectator* of the mechanical Belini.—*Insipide et inodore vim medicam vix exercent*, is an aphorism of Linnæus. “ This rule (says Dr. Cullen) “ seems to be without exception; and it “ is on this account, and not on any “ proper experience, that many plants “ are expunged from the *Materia Medica*, “ as having no taste or odour which should “ point out in them any active qualities.”—After such evidence, we may, I think,

Pb. botan.
Frag.
meth. nat.
Mat. Med.
p. 161.

I think, justly proceed to the condemnation of the infallible *Pulvis Antilyssus*.

65. But Dr. Mead, in order to convince the world that he had not adopted this medicine without proper scientific investigation, informs his readers, that he examined the *Lichen cinereus terrestris* by distillation, and that the result of his analysis was, some acid water, some oil, and some coal that contained fixt salt. A bunch of docks, of nettles, of thistles, or of any other common weed, would have yielded the same. This sort of analysis can be of no use in discovering the medical virtues of plants. The receipt to make this celebrated *Pulvis Antilyssus* was first brought to England by Captain Dampier, who called the plant Jew's Ear (*Tremella auricula* of *Linnaeus*) a kind of ash-coloured fungus, which is frequently found on the trunks of old trees. But it seems Sir Hans Sloane was of opinion that the Captain was mistaken; that he certainly meant the ash-coloured Liverwort, which, on the authority of so great a naturalist, was accordingly adopted. Is it not probable from this history, that, in rejecting the original

original Jew's Ear, Dr. Mead seized the ear of the wrong sow?

66. The next infallible medicine I shall examine is that which, about thirty years ago, was brought from Tonquin by Sir George Cobb, when he returned from the East Indies. It consists of native and factitious Cinnabar each twenty-four grains, with sixteen grains of Musk, powdered and mixt well together. This dose is to be taken in a glass of Arrack once only, and repeated after an interval of thirty days. The absurdity of making any distinction between *native* and *factitious* Cinnabar, which are precisely the same thing, is too obvious to need a commentary: it proves, however, the ignorance of the Chinese old woman who probably invented the medicine, and of all those who in prescribing this powder have continued to observe the same ridiculous distinction. But, in the composition of this specific, there is another absurdity of more importance. All the cinnabars, whether *native*, *factitious*, or of cinnabar of *antimony*, are mere powder of post; absolutely inert.

67. " Factitious

67. " Factitious cinnabar (says Dr. Pa. 155. James) is made of three parts of mercury to one of sulphur; and, as I remember, a pound of good native cinnabar yields near fourteen ounces of fluid mercury; and therefore it seems that the good effects of this medicine ought to be principally, if not entirely, ascribed to mercury."—Dr. James, having resolved to sport a preparation of mercury as the only specific for canine madness, was quite satisfied with this sort of reasoning: but *we* must come nearer to the point.

68. Native cinnabar is the ore of mercury; that is, mercury mineralized by sulphur, in the proportion of about six, seven, or eight parts of the former to one of the latter.—Sulphur possesses the singular property, in combination with mercury or antimony, of rendering both these violent metallic substances inactive. It is particularly well known of antimony that it is more or less mild in proportion as the *regulus* is combined with more or less sulphur. This chemical fact Dr. James must have known, if he had understood

the process for making his own fever-powder. But mercury, before it can exert its stimulant power, must not only be completely extricated from the sulphur with which it formed cinnabar, but must afterwards be divided by trituration, or dissolved in a mineral acid. Now, the only means of decomposing cinnabar is by fire, in, what is called by chemists, the dry way. In the human body, therefore, it is impossible; but if we could suppose the mercury actually separated from the sulphur, not being dissolved by a mineral acid, or otherwise divided, it would still remain in a state of total inactivity: *a priori*, therefore, cinnabar may be pronounced inert.

69. But, lest the advocates for this Tonquin medicine should deem this sort of philosophical argument inconclusive, let us take the opinions of a few eminent chemists on the subject.—Dr. Cullen, in his Lectures on *Materia Medica*, speaking of mercurial preparations, says—“Crude
 Pa. 451. “mercury, and the combination in cinnabar and *Æthiops mineralis*, to which
 “may be added *Æthiops antimonialis*, in
 “so

“ so far as it contains mercury, can only
“ by accident, or indirectly, prove medi-
“ cines.”—“ Triturated with sulphur, Pa. 444.
“ mercury becomes an inert substance.
“ This I could determine *à priori*, whe-
“ ther it was in the form of Æthiops
“ mineral, or native or factitious cinna-
“ bar.”—Dr. Lewis in his Dispensatory Pa. 331.
tells us, that “ cinnabar, like Æthiops,
is inactive.”—Cartheuser, having given a
large quantity to a dog, says, that it pro-
duced no sensible effect, but that part of
it passed through the intestines unaltered,
and that the remainder was found in the
stomach and bowels.—Dr. Longfield,
whom I have before mentioned, wrote the
following note on the article *cinnabaris*
factitia in the *Pharm. Col. Reg. Med.*
Londinensis—“ It is a shame that the cin-
“ nabars are not totally exploded: they
“ have not the least title to the character
“ of nervous medicines; they are both
“ inert.”—But it were unfair to conceal
from the reader, that a famous German
chemist of the last century was of a dif-
ferent opinion. He considered cinnabar
as an efficacious medicine, and ascribed its
virtue to its beautiful colour, with which

Archeus

Archeus is so charmed as to neglect the disease which he was employed in exiting; for it seems this *Archeus*, this creature of Van Helmont's distempered brain, is wonderfully delighted with the colour red.

70. In answer to all this reasoning *a priori*, I shall be told, that experience is the only test, and that the instances upon record, of the hydrophobia being cured or prevented by the Tonquin powder are innumerable. In reply to this answer—*First*, there are examples upon record of persons having died of the hydrophobia after taking it, particularly in two cases related in the London *Medical Observations*: *Secondly*, many other medicines, equally infallible and equally extolled, have deservedly sunk into contempt: *Thirdly*, no attestation of facts will convince a rational being that an effect was produced without a sufficient cause: now, a substance which is demonstrably inert can produce no effect in an animal body, and therefore can cure no disease.

Page 195,
and appen-
dix, p. 3.

71. Cinnabar being thus, I think, fairly dispatched, if there be any antidotal

dotal power in the Tonquin medicine, it must be attributed to the antispasmodic virtue of the musk: Dr. James ascribes it to its alkaline quality—"Musk (he tells us) is an animal substance, and consequently of an alkaline nature; and as alkalies have in all ages been recommended in this case, it seems at least to be not prejudicial."—This is *damning musk with faint praise*. But what did the Doctor mean by ascribing to it an alkaline quality because it is an animal substance? Had he forgot that animal matter wants the assistance of fire to produce alkali? If every species of animal matter be an alkaline medicine, the parings of his own nails would have done as well. Musk, however, is doubtless a powerful antispasmodic, and for that reason may be of service in the *hydrophobia*.

72. This Tonquin powder is ordered to be taken in a glass of Arrack, doubtless with no other intention than to cover the taste of the musk. This vehicle, however, suggests an idea, which, though I may think it extravagant, I will communicate. Suppose, when the symptoms of

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the fatal disease in question first appear, previous to the difficulty of swallowing liquids, the patient were to drink to intoxication of any strong liquor he may chuse. Who, without trying it, will pretend to circumscribe the antispasmodic effect of this remedy? It is certainly not contra-indicated by any febrile or maniacal symptoms. In a forlorn hope no attempt can be too extravagant. It will at least answer one good purpose: I mean that of relieving the patient from several hours of the most horrid anxiety that can possibly be conceived.

73. I now beg leave to call the reader's attention to the mercurial preparation so strenuously recommended by Dr. James in his *Treatise on Canine Madness*. It is called *Turpith mineral*; it is a precipitate of mercury from its solution in the Vitriolic acid, by which it was not only dissolved but calcined. Whether it be a pure calx of mercury, without any adhesion of vitriolic salt, is a matter of dispute among chemists of the first reputation. Monsieur Baume declares positively, *que, ce précipité est absolument privé de toute acide, lorsqu'il a été*

a été lavé à plusieurs reprises dans de l'eau bouillante.—Nevertheless, from the effect of the medicine, I presume he is mistaken. It is a very rough mercurial, fit only for dogs, to which animals Dr. James seems to have given it with success. As to its effect on the human species, he produces no more than one single case of a patient bit by a mad dog, and cured under his own immediate care by Turpith mineral. He relates, indeed, three or four other cases in support of his specific, on the authority of persons of his acquaintance; but *hear-say* evidence in this case, as in courts of justice, is inadmissible.—Dr. Raymond, physician at Marseilles gave seven boluses, containing each four grains of Turpith mineral, to a patient bit by a mad dog: the patient died.

*Med. Obs.
append. p.
3.*

74. The Ormskirk medicine, which in many parts of this kingdom, particularly in the North, is deemed infallible, appears, from the report of Dr. Black and Dr. Heysham, to consist of, *Powder of chalk*, half an ounce; *Armenian bole*, three drachms; *Allum*, ten grains; *Powder of elecampane root*, one drachm; *Oil of anise*,

*Med. Com.
Vol. v. p.
50.*

E 2 six

fix drops.—Now, though the chemical enquiries of these gentlemen may not be admitted as proof positive, yet when the result of experiments made by two able chemists, at different times, is precisely the same; when a medicine composed of the supposed ingredients has the same colour, taste, and smell, we have the strongest presumptive evidence that our conjectures are well founded; especially, when there is no discoverable difference between the effect of the real and supposed composition.

75. As to the medical virtues of the ingredients above-mentioned, they are sufficiently known.—Chalk is a mere absorbent earth, without any other power than that of destroying the acid it may meet with in the *primæ viæ*, and, during the effervescence, of producing a little calcareous gas, commonly called fixt air.—Armenian bole, such as is generally sold by the druggists, is nothing more than a lump of pipe-clay, coloured with a little red ochre or rust of iron.*—Allum is an astringent,

* This English or Dutch Armenian bole is, in no respect, inferior to the true Oriental, or to any other bole, for medical purposes.

astringent, and nothing more.—Elecampane-root hath been generally ranked among the Alexipharmics; it is said to assist expectoration, and, in large doses, to act as a diuretic and cathartic: it is, however, in no estimation, and in so small a dose, mixt with the other ingredients, can produce no effect.—As to the six drops of oil of aniseed, I presume their efficacy, in the present case, will hardly be insisted on.

76. Possibly I may be told, that, though these several ingredients, separately taken, may possess no extraordinary medical powers, yet, like other compounds they may, when united, form a medicine of considerable virtue.—I acknowledge that a powerful medicine may be formed by a judicious combination of simple ingredients, prescribed on chemical principles; but I am very certain, that an ignorant jumble of chalk, clay, allum, and elecampane, will form nothing but an heterogeneous mass of dirt, that may do harm, but cannot possibly do good in any disease whatsoever.

77. But, say the advocates for the Ormskirk powder, what signifies reasoning against facts? Are there not a thousand examples of the hydrophobia prevented by taking this medicine? Would the sagacious inhabitants of the northern counties have such faith in a mere *ignis fatuus*? —Far be it from me, to doubt the sagacity of the northern counties: they are by no means singular in mistaking shadows for realities. All quack-medicines, and more than half the medicines used in regular practice, are *ignes fatui*. What are all the vaunted *panaceas*, *theriacas*, antidotes, and specifics, but *ignes fatui*, deceptions, chimeras?

78. The several specifics above considered have all successively had their day of infallibility, and have all been equally supported by experience, the true test of medical virtue: that is, a number of people bitten, or supposed to be bitten, by dogs supposed to be mad, have taken the Ormskirk, or any other infallible powder, and have escaped the hydrophobia. But in the *London Medical Observations*, &c. we have, on the authority of

of Dr. Fothergill, an incontestable proof that the Ormskirk medicine is not infallible: Mrs. Bellamy, who was bit by a mad cat, took it, and "conformed to the directions given by the vender in every respect," yet died of the hydrophobia about four months after, as, I make no doubt, would all the patients that ever took the Ormskirk medicine, if they had been really infected by the canine poison.

79. This censure I do not confine to the Ormskirk, nor yet to any of the medicines above-mentioned: it comprehends every prophylactic remedy taken internally. Can any thing be more absurd than to imagine, that a disease received into the body by inoculation; a poison absorbed by the lymphatic veins, and mixed with the general mass of circulating fluids, can be destroyed by a medicine taken into the stomach? Is there any analogy in the history of physic to authorize such expectations? Will any powder, pill, or bolus, stop the progress of the small-pox by inoculation, or prevent it from taking effect? Was there ever a phy-

fician weak enough to attempt to prevent any other infectious disorder, after the poisonous *liquid* or *miasmata* were actually absorbed?

80. Having thus, I hope not unfairly, considered the pretensions to infallibility of the specifics introduced and recommended by particular men, we are come at last to that sovereign remedy extolled by every writer on canine madness, ancient and modern, and used in all countries, in every age, from the days of Celsus to the present moment—I mean *bathing in cold water*. To this part of our subject I beg the reader's particular attention, because I am very certain that many lives have been lost by a foolish dependence on this broken reed. I have said that all writers on canine madness, ancient and modern, have recommended cold-bathing; but I must except Dr. Falck, the author of *The Seaman's Medical Instructor*, and Dr. Forthergill, who wrote a paper in the *London Medical Observations*, purposely to prove the inefficacy of bathing in the sea.

Vol. v.
p. 290.

81. The physician last mentioned was of opinion, that the practice of bathing in

in salt-water, as a preservative, originated in a mistake. Celsus directs the patient, actually labouring under the hydrophobia, to be thrown unexpectedly into a fish-pond: if he cannot swim, he is to be suffered to flounce and drink, raising him a little now and then, so as to keep him from drowning; but, if he can swim, he is to be frequently ducked, that in spite of himself he may be satiated with water: "Thus (says Celsus) his thirst and dread of water will be cured at the same time."

*Cels. lib.
v. c. 27.*

82. Celsus was mistaken in supposing that he could force the patient to drink by holding him under water, or that, after being half drowned, he would look on water with less horror, or swallow liquids with greater ease. The latter part of this discipline is daily practised, by the old women at the watering places, on the wretched creatures that are sent by old women, male and female, from the inland country. This practice of drowning the patient in order to cure him of an aversion to water, absurd as it is, was probably taken from Celsus, who, though a sensible man,

man, possibly without experience or much reflexion, prescribed it on the authority of some Greek writer; but why the sea was substituted for a fish-pond, and how it came to pass that what *Celsus* ordered as a cure for the hydrophobia actually present, should be applied as a prophylactic, a preservative remedy, is difficult to conceive.

83. Who was the inventor of this immersion in salt water I cannot determine. I am inclined to think that it originated in Holland or Flanders, in the days of panaceas, charms, witches, and hobgoblins. That it was a common practice in the Netherlands in the sixteenth century appears from the following passage from Van Helmont; which, as his books are not in every library, and, I believe, were never *done* into English, I shall endeavour to translate literally.—“There is a fortress
“on the sea-coast, about four leagues
“from Ghent, called Sluce. There I
“saw a ship passing by, and in it an old
“man, naked, bound, and weights
“fastened to his feet. Under his arms
“they had tied a rope, the other end of
“which

“ which was fixed to the yard-arm of the
“ vessel. I asked the meaning of this
“ spectacle, and was answered by one of
“ the sailors, that the old man had got
“ the *hydrophobia*, having, some time ago,
“ been bit by a mad dog. Why, I
“ asked, is he brought to the sea? Whether they meant to drown him? ‘No, no,
“ (said the sailor) he will soon be cured;
“ such is the blessing of God upon the
“ sea, that it will instantly cure this kind
“ of madness.’ At my request they took
“ me on board. We had scarce sailed a
“ mile, when the sailors, by pulling out
“ a plug in the bottom of the ship, let in
“ the water, till she sunk almost to the
“ edge of the gunwale. This sea-water
“ they collected for the purpose of making
“ salt. The plug being now re-adapted,
“ two men hauled down the opposite
“ end of the yard, and thus hoisted the
“ old man into the air. They then let
“ him drop into the sea, and he remained
“ under water *ad spatium Miserere*. They
“ repeated this operation twice more,
“ keeping him each time under water *ad*
“ *spatium Salutationis Angelicae*.”

Psalm LI.

84. Some profane readers may possibly be inclined to comment ludicrously on this *spatium Salutationis Angelicæ*; but, choosing rather to treat the matter seriously, I requested a friend to read over the *Miserere*, and found by my stop-watch, that he performed it in one minute and thirty-five seconds; and the *Salutatio Angelica* in ten seconds. Van Helmont is not sufficiently explicit in this important part of his narrative. Whether this was only a method of computing time, or whether these psalms were actually repeated during the immersion, does not appear. I am inclined to think they were: if so, this capital omission in our old women on the sea coast sufficiently accounts for their fallibility. But to proceed with Van Helmont's story.

85. " They then laid him on his back
 " across a barrel, and covered him with
 " a watch-coat. I concluded he was
 " dead; but the sailors ridiculed my ap-
 " prehensions. Being now released from
 " his bonds, he discharged all the water
 " which he had *inspired*, and presently
 " revived. He was a cooper from Ghent,
 " and

“and being cured of his *hydrophobia*,
 “continued perfectly well.”

86. If the poor cooper remained long in that position, *supino dorso super venteres*, I marvel that he ever recovered. That the Dutch sailors should believe that his lungs were full of water is no great wonder: Van Helmont should have known better. There are, indeed, writers of some reputation, who tell us that they have found water in the lungs and stomach of drowned subjects; but, waving the improbability of the fact, later experiments prove incontestably that drowning animals rarely imbibe any water; certainly no quantity to do them any injury. *Morgagni* drowned guinea-pigs, hedge-hogs, dormice, and other animals, and found on dissection little or no water in the lungs or stomach of any of them. The opinion that drowned persons are full of water, erroneous as it certainly is, prevails so universally among the ignorant, that I am persuaded many have been prevented from recovering by holding them up by the heels, or laying them on the side of a hill, with the head downwards.

Ep. xix.
art. 41.

87. These

87. These Dutch skippers told Van Helmont, that a salt herring applied immediately to the wound was an infallible cure for the bite of a mad dog, and that half drowning in salt water was only necessary when this remedy had been neglected; so that we have neither the authority of Celsus, nor the practice of the Netherlands, to plead in favour of sea-bathing as a preservative. The case of this cooper, if we believe that he was really so mad as to require being fettered, affords a singular example of the hydrophobia actually cured by immersion in salt water: it is indeed so singular, that I can produce but one more on any tolerable authority. The instances in which it has failed, as a prophylactic remedy and cure for the hydrophobia, are innumerable.

88. Morgagni, *Epistle viii. Art. 23.* tells us, that an hydrophobic patient was thrown into a cold bath, and held some time under water: he died the night after. — In *Art. 25*, we read of another who died soon after he was taken out of the bath. — *Art. 26.* After mentioning Van Helmont's cooper, and the case of a girl recorded

recorded in the history of the Academy of Sciences at Paris, Morgagni writes thus: Ann.
1699.
 “ Immersion in cold water must have
 “ succeeded very differently with others;
 “ since, beside *Baccius*, and him whom
 “ *Parry* pointed out, not only *Salus* has
 “ written that he, after several times
 “ experience, had found no advantage
 “ from this remedy, but also *Cælius Aure-*
 “ *lianus* expressly discommended it, as
 “ injurious. But *Palmarius* has admo-
 “ nished us, that it was certain, from the
 “ experience of many, that this method
 “ of treatment had been very unsuccess-
 “ ful.”

89. *Boerhaave's* directions for bathing Apb.
1143.
 the patient in the sea, or in a river, are
 very singular.—“ Immediately after in-
 “ fection, with great preparation, ex-
 “ citing fear, and after frequent threat-
 “ nings, at last throw him into the water.”
 —He then repeats the orders given by
 Celsus for half-drowning the patient:
 “ for (he adds) the cure is effected by the
 “ perturbation of the mind (*spiritum tur-*
 “ *bando*) agitation of the animal spirits,
 “ and not by the salt water, as we learn
 “ from

“ from the deplorable exit of the man
 “ who, after being bitten by a mad dog,
 “ was ship-wrecked and swam a long
 “ time in the sea, frequently covered by
 “ the waves, yet died of the hydropho-
 “ bia.”—This being the case, threatening
 to *hang* the patient would answer the same
 purpose. Here, I think, sea-bathing seems
 to be fairly given up.

90. *Dr. Mead*, speaking of sea-bathing
 as a preservative, says, “ I have known
 “ many to have died raving mad who had
 “ undergone this treatment.”—“ I will
 Page 235. “ not (says *Dr. James*) pretend to de-
 “ termine how much more effectual bath-
 “ ing in the sea may be than in cold
 “ fresh water. It is certain that many
 “ that have been almost drowned in the
 “ sea have soon after died of the *hydro-*
 “ *phobia*; and I knew a gentleman who
 “ took thirty couple of fox-hounds to the
 “ sea, and had them dipped with all
 “ manner of caution; notwithstanding
 “ which, he lost several hounds every
 “ day he took out the pack.”—In the
Edinburgh Medical Essays, we read of a
 boy, bit by a mad dog, who was ten times
 dipt.

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65

died in the sea, yet died of the *hydrophobia* some months after.—*Dr. Fothergill*, in his *Additional Remarks on the treatment of persons bit by mad animals*, addressed to the editors of the *Medical Observations, &c.* says: “ I have heard of diverse instances, P. 290.
“ and I have no doubt but you are as well
“ satisfied as myself, and perhaps from
“ your own observation, that this process
“ (sea-bathing) is by no means a preser-
“ vative from the fatal consequences of
“ the bite of mad animals.”—*Desault*, a physician at Bourdeaux, in his treatise *sur la Rage* gives his opinion on this subject in the following words: “ When I am
“ applied to by a person bit by a mad
“ animal, I order him to bathe in the sea,
“ though I have no dependance on this
“ remedy, since the many proofs we have
“ had of its inefficacy in the course of
“ the present year.”—*Choisel*, a Jesuit residing at Pondicherry, in a pamphlet published at Paris in 1756, in which he relates many examples of canine madness cured by mercurial friction, says: “ Bathing
“ in the sea has hitherto been considered
“ as an infallible preservative from this
“ disorder. My own experience proves
F “ the

“ the futility of that opinion. Not one
 “ of those who depended solely on this
 “ remedy survived the bite more than
 “ thirty-three days.”

91. I presume the reader is, by this time, satisfied as to the efficacy of bathing. The reason why it continues, in the present age, to be used as a prophylactic remedy for the bite of a mad dog, is the same which may be assigned for a thousand other foolish customs—*our fathers did so before us*; and their reason was, that *their fathers did so before them*: but from what theory the inventor of this remedy deduced his prescription is not easily imagined. All medicines must have originated either in reasoning *à priori*, or from some fortuitous event. The first, I think, is, in this case, out of the question: I conclude, therefore, that some person bit by a dog, supposed to be mad, accidentally fell into a horse-pond. He continued well; *ergo*, the hydrophobia was prevented by a ducking. The reputation of some other medicines in constant use for other diseases is not a whit better supported.

92. *Aurelianus,*

92. *Aurelianus*, in his chapter entitled Cap. 16.

Quomodo curandi sunt hydrophobi, exhibits the various prescriptions of all the authors he had read upon this subject. Most of them deserve no notice. I shall select a few however which, doubtless, the reader will think too important to be neglected :

—“ Let the patient’s chamber be tolerably warm and lightsome.—Let the part that was bitten be covered with a piece of clean warm flannel.—If it be necessary to bleed him, let the blood be received in the hand of the assistant, lest the noise of its falling into the basin should affect the patient.—Talk to him about washing and drinking, and, if he hears this patiently, you may then give him something to drink ; if not, you may let him suck through the spout of a tea-pot, covering his eyes or darkening the room.—Let his nurses be discrete and not * loquacious.—Let his head be shaved.—Let him be exercised in a hammock or a sedan.—If he refuses to take any liquid in at his mouth, force it into the other end of him ; but, take care that you do not
F 2 “ administer

* *Aurelianus* did not mean female nurses.

“administer too great a quantity, lest it
 “squirt in your face. This perilous
 “operation being happily accomplished,
 “you are then to squeeze his, or her,
 “belly, so as to force the contents up-
 “wards, and thereby quench the patient’s
 “thirst. *Tullius Bassus* (says our author)
 “besides clysters gave his patients a pinch
 “or two of snuff; whose friend Dr. *Black*
 “gave *white hellebore*, of which some
 “physicians order a cataplasm to the
 “patient’s backside.”

Demen’s
idea,
 p. 287.

93. “*Paracelsus* (says *Van Helmont*)
 “affirmed, that the hydrophobia might
 “be cured by acrid purgatives. His pro-
 “mises, however, are not justified by the
 “event. Our good Catholics, therefore,
 “despairing of relief from the faculty,
 “repair to St. Hubert, at whose shrine,
 “by virtue of certain ceremonies, they
 “are cured; but, it is worthy of remark,
 “that if these ceremonies are not strictly
 “observed, the latent *rabies* immediately
 “breaks out, and they become irrec-
 “verably hydrophobic. There is a vest-
 “ment of St. Hubert’s, which is pre-
 “served in a chest, secured by six locks,
 “the

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“ the keys of which are kept by six dif-
“ ferent Vergers. For these fourscore
“ years past they have been continually
“ cutting off pieces from this holy vest-
“ ment; nevertheless it remains, to this
“ day, perfectly entife. Now, it is im-
“ possible there should be any imposture
“ in the case; for they have never been
“ able to discover whether this miraculous
“ robe be of linen, woollen, or of silk,
“ consequently it cannot be annually re-
“ newed. They cut off a piece of the
“ robe, and incarnate a thread between
“ the skin of the patient's forehead.
“ Hence another miracle; for a person
“ thus cured becomes possessed of a power
“ to postpone the hydrophobia during
“ forty days in any of his acquaintance,
“ who, after being bitten, may not have
“ leifure immediately to visit St. Hubert:
“ on this condition, however, that if they
“ exceed the forty days ever so little,
“ without applying for a prorogation of
“ the term, they go mad irrecoverably.”

94. Those who are conversant with
books on this subject, will ask, why I
have taken no notice of the celebrated

Swollen

F 3

powder

powder invented by Palmerius?—I have two reasons: *first*, because it *deserves* no notice; *secondly*, because it is never prescribed in this kingdom, and therefore can do no mischief. I have omitted several other *infallible* medicines for the same reason. An idle display of medical erudition on so trite a subject were ridiculous. I sat down solely with a design to convince the less informed part of the community, that their opinions concerning the prevention of canine madness, or *hydrophobia*, are fatally erroneous, inasmuch as that dependence precludes the application of more rational means. I determined to employ a few leisure hours on this subject, because Boerhaave, Mead, and other physicians of high reputation, have authorised such irrational dependence.

95. But this is not the sole mischief of which the erroneous opinions of eminent men are productive. Dr. Mead, fully persuaded of the all-sufficiency of his *Pulvis Antilyssus*, endeavours most irrationally, to divert his readers from an attention to the wound. These are his words—“The ancient physicians, who are
“ followed

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“ followed in this by the moderns, advise,
“ where the place will admit of it, to
“ enlarge the wound by incision; to ap-
“ ply a cupping-glass; to burn it with a
“ hot iron, and to keep a discharge from
“ the ulcer for many days. I cannot but
“ say, that I think all this severity use-
“ less.”—“ It happens in most cases that P. 89,
“ the wound, being small, is healed up
“ before the patient seeks for help. For
“ this reason, and because it is of no great
“ consequence whether it be cured or
“ not, in the paper which I printed and
“ dispersed some years since, entitled, *A*
“ *certain cure for the bite of a mad dog,*
“ I took no notice of any outward appli-
“ cation.”—I will, without hesitation,
venture to pronounce this the most per-
nicious doctrine that ever was taught by
any physician ancient or modern. It af-
fords one of the most flagrant examples
in the annals of medicine, of a sensible
man and a scholar sacrificing his reason,
his common sense, to a preconceived
hypothesis. He imagined that the poison
contained in the saliva of the enraged ani-
mal contaminated a nervous fluid—which
has no existence; and that this poison

might be carried off by a diuretic medicine—which is certainly neither diuretic nor any thing else. He advised cold bathing, because, on mechanical principles, he supposed that the external pressure of the water, by constringing the vascular system, would determine the segregated poison to the kidneys, and so assist the operation of his *Pulvis Antilyssus*.

96. Before I prescribe that which I conceive to be the only rational means of preventing the fatal effect of the bite of a mad dog, it is necessary that I should answer a very natural question.—If (says the reader) the several specifics above condemned are really good for nothing, how comes it that so many persons bit by mad dogs are daily cured by the Ormskirk medicine, bathing in the sea, &c.?—If this were not what is called begging the question, I should be distressed for an answer; but the truth is, that all those who believe themselves cured by these futile preservative remedies were never infected; and consequently no harm would have happened, whether they had used them or not. Fortunately for mankind,

not

not one in fifty of the dogs supposed to be mad are really mad; and of those few that are so, their teeth are often wiped clean by the clothing of the person bit, and consequently no inoculation takes place. It happens also, as in all other infectious diseases, that the body is frequently not disposed to receive the infection. These, and these only, are the causes of all the transitory reputation which the various *infallible* medicines have from time to time acquired.

97. Nevertheless, as the case is always doubtful—as possibly the dog may be actually mad, and the poison really imbibed, nothing can be more imprudent than to depend on the chance of its being otherwise: we are, therefore, to act as if we were certain that the dog was a mad dog. The person bit must immediately apply his mouth to the wound, and continue to suck it during ten minutes or a quarter of an hour, frequently spitting out, and washing his mouth after each time with water, warm or cold, no matter which. If the wound be in a part of his body which he cannot reach with his mouth,

mouth, possibly he may prevail on some rational friend to do him this kind office; especially when I assure him, positively assure him, that it may be done without the least danger. My own son, then about eight years old, in returning from school, was bit by a dog in the thigh. My eldest daughter, being informed of the accident, without the least hesitation immediately sucked the wound. She had heard me say it might be done with safety. The dog was certainly not mad; but I relate the story in justice to her affectionate intrepidity, which, in a young girl, was somewhat extraordinary.

Lib. III.
c. 2.

98. Neither ancient nor modern writers, if I remember right, have advised sucking the wound received by the bite of a mad dog: yet Galen, in his book *de Temperaments*, says, that the saliva of this animal is not equally dangerous when admitted into the stomach; therefore, it is probable that, in some part of his voluminous writings, he may have mentioned this experiment. But, in the bite of a venomous serpent, Celsus, and after him Dr. Mead, lays great stress on this preservative

Lib. V.
c. 27.
P. 37.

servative application. It is very extraordinary, that in one case the Doctor should deem it of so much, and in the other, of so little importance. The first of these authors assures us, that the Pfylli, a people who pretended to an hereditary and exclusive power of curing the bite of serpents by suction, owed their success solely to their resolution; for, says he, *Venenum non gustu, sed in vulnere nocet*; adding, "whoever, therefore, sucks the wound after the example of these Pfylli, will save his friend, and do himself no injury."

99. Dr. Mead was informed by a surgeon who lived in Virginia, that the Indians there cure the bite of the rattle-snake by first sucking the wound*, and then swallowing a large quantity of a decoction of the rattle-snake root, so as to vomit plentifully. Now, that the decoction contributes nothing towards the cure, I presume will be readily admitted; sucking the wound, therefore, is the sole remedy, which was certainly dictated by the

Mead,
P. 40.

* This is also a common practice in the Highlands of Scotland. See Pennant's *Tour. append.* p. 275.

Mead,
p. 38.

the natural sagacity of this people. That this cure is effectual is confirmed by the case of a man in London, who, being bit by a rattle-snake brought from Virginia, sucked the wound, and recovered. "As the poison (says Dr. Mead) of this snake is more quick and deadly than any other that we know, a remedy for this will most certainly prove effectual against that of smaller vipers, and all other creatures of this kind"—and why not of every other kind? Was not the analogy sufficiently obvious? If the poison of a serpent may be sucked from a wound, is there any reason to imagine that the *virus* in the *saliva* of a dog may not? But then the infallible *Pulvis Antilyssus* would have been of no use. Seriously, I believe, that if this simple operation were immediately and resolutely performed, no other remedy would be required. The best medicines are often the most simple, and those which are nearest at hand. We are too apt superciliously to overlook the simple dictates of nature and common sense, to the discredit of our profession, and the loss of our patients. Art, chemistry, compounds, and systems, are the hobby-horses of

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of young physicians ; and it is not till they have grown old in the profession, that they return to Nature and Hippocrates.

100. But, though I have great dependence on this simple preservative remedy, we cannot be provided with too many weapons; offensive and defensive, against so formidable an enemy. Those who want resolution to attack the foe personally, will be glad of a substitute. That substitute is a cupping glass, or any other vessel that will answer the same purpose. If no surgeon be present take a pretty large piece of paper; twist it gently, so that it may easily be thrust into a narrow-mouthed jug; light the paper well, and, having put it into the vessel, fix it tight over the wound, and let it remain in that position till it may be easily taken off. Repeat this operation three or four times.

101. Ancient and modern writers on this subject have generally advised searing the wound with a hot iron; partly with a design to destroy the poison, but particularly with an intention to produce an ulcer.

ulcer. This, I think not only an unnecessary, but a pernicious act of cruelty. Let us suppose that a particle of the poison, sufficient to communicate the disease, is absorbed by a lymphatic vein, what will be the effect of the application of a red hot iron to the extremity of that vein, after such absorption? Will it not immediately shrink and shrivel? and will not the reduction of the poisonous *fomes*, by any external application, be thus effectually prevented?

102. The wound being now wiped dry with lint or tow, let two drachms of mercurial ointment be rubbed into it, and let the part be then covered by a blistering plaster somewhat longer than the wound. As soon as a bladder is perceived to have risen under the plaster, raise the edge of it, and let out the lymph; and, in order to keep it running, let it be daily dressed, during fourteen days or longer, with an ointment composed of equal parts of *Emplastrum vesicatorium*, and *Unguentum cæruleum fortius*, P. L. melted together in a very gentle heat. Let a drachm of mercurial ointment be rubbed into the fore

part of the legs of the patient every other night, and on the nights intervening let him take a bolus, composed of three or four grains of Calomel, six grains of Camphore, and a drachm of Conserve of Roses. If any signs of salivation should appear, it must be checked by a day or two's suspension, and a dose of Glauber's Salt.

103. It may possibly be asked, on what foundation I have differed from so many eminent writers in not advising immediate scarification?—I answer, because they advised scarification on a groundless supposition. They imagined that the canine *virus* was communicated to the blood; therefore they wisely ordered the blood thus contaminated to be drawn away; but I conceive the poisonous *fomes* to be absorbed by the lymphatic vessels, and, therefore, I prefer blistering the part.

104. Every person who, from the bite of a dog really mad, has received the fatal poison, whose constitution is at that time disposed for such infection, and who has ignorantly depended on sea-bathing, or
on

on any specific taken internally, will, most certainly, in the space of a few weeks, perceive symptoms of the approaching catastrophe, called *hydrophobia*. In this stage of the disease I fear there is very little probability of recovery. I have, in paragraph 72, perhaps rather wantonly, advised intoxication; I am still of opinion that it is an experiment worth trying. It can certainly do no harm. I remember somewhere to have read of opium, in large doses, being successfully administered; but I do not find this practice confirmed by experience. Powerful anti-spasmodics are certainly indicated.

105. In the 4th paragraph of this essay, I mentioned the case of a young gentleman, whom I attended in the last stage of this horrible disorder. He had been bitten by one of his father's hounds, six or seven weeks before. A day or two before I saw him he complained of a pain in the arm which had been bitten, gradually extending towards his shoulder. He had taken many doses of the expressed juice of Ribwort, which in that country was universally deemed a specific, and had bathed

bathed every day in the river. I saw him about ten in the morning. He complained of nothing but a pain in his arm, and some little difficulty in swallowing. I ordered a warm bath to be prepared, in which he sat half an hour with great composure. I rubbed a considerable quantity of mercurial ointment into each arm, and gave him a grain of crude opium every hour, till nine or ten o'clock at night, without the least effect. About eleven he became extremely restless, and died at twelve, retaining his senses to the last moment, without any symptoms of madness, or propensity to bite his attendants.

106. This pamphlet, inconsiderable as it may appear to some readers, was not written *stans pede in uno*; it was nearly finished before the publication of Dr. Cullen's third volume of *First Lines of the Practice of Physic*. I saw, in that volume, with infinite satisfaction, my own opinion, concerning the cure of the disease in question, confirmed by that of my venerable preceptor, who concludes his chapter on canine madness with these words.—

“ Whilst the state of our experience, with
G “ respect

" respect to several remedies now in use,
 " is uncertain, I cannot venture to assert
 " that any of these is absolutely inef-
 " fectual; but I can give it as my opinion,
 " that the efficacy of mercury given very
 " largely, and persisted in for a long
 " time, both as a means of preventing
 " the disease, and of curing it when it
 " has actually come on, is better vouched
 " by experience than that of any other
 " remedy now proposed, or commonly
 " employed."

107. This Essay may possibly be read
 by persons who live in the country, at
 some distance from an apothecary, and
 consequently, in case of an accident, it
 may be many hours before any mercurial
 ointment can be procured. Such readers
 will necessarily ask, what then is to be
 done?—Whilst the person bit is sucking
 the wound, let a spoonful of lard, or
 tallow, or fat of any kind, be melted, and
 immediately, with the hand, rubbed into the
 part, continuing the operation until the fat
 be entirely absorbed. Let him then take his
 horse and ride leisurely to the nearest apo-
 thecary, who will proceed as above directed.

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108. On the testimony of *Dessault*, and the Jesuit *Choisel*, particularly the latter, mercury appears to be a certain antidote for the poison of a mad dog. The first used mercury only in the ointment: *Choisel*, besides using the ointment, gave also a mercurial bolus. They both succeeded. From *Dessault*'s practice we learn, that mercury externally applied is sufficient; but evidence is wanting to prove that mercury taken internally, without the external application of the ointment, will prevent the *hydrophobia*. May we not, therefore, hazard a conjecture, that the lard or fat of which the mercurial ointment is made is the real preservative? Is not this conjecture powerfully supported by the analogy between the canine poison and that of a viper, which is effectually destroyed by viper's fat, or oil of any kind, applied to the part? I mention this merely as a conjecture, future experiments may possibly discover it to be a fact: meanwhile, when mercurial ointment can be had, doubtless it ought to be preferred.

T H E - E N D.

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108. On the testimony of D. J. and the Doctor, particularly the latter, it appears to be a certain antidote for the poison of a mad dog. The first remedy only in the ointment, besides using the ointment, gave successful results. They both were from Dr. J.'s practice was that mercury externally applied is not so good, but evidence is wanting to show that mercury taken internally, with the external application of the ointment, will prevent the hydrophobia. Many of the authors, indeed a consensus, that the kind or lot of which the mercury ointment is made is the real principle. It is not the mercury itself, but the kind of mercury, by the analogy between the same poison and that of a viper, which is effectively destroyed by viper's fat, or oil of any kind, applied to the part. I mention this merely as a conjecture. Future experiments may possibly discover it to be a fact; meanwhile, when there is no ointment can be had, doubtless it ought to be preferred.

T H E E N D